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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/883,220   | 06/19/2001  | Dinesh Kumar Sood    | Q65032              | 9834             |
| 7590   | 10:30:2003  |                      |                     | EXAMINER         |
| SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC<br>2100 Pennsylvania Avenue, NW<br>Washington, DC 20037-3213 |             |                      | ROJAS, BERNARD      |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2832                |                  |

DATE MAILED: 10/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |              |  |
|------------------------------|-----------------|--------------|--|
| <b>Office Action Summary</b> | Application No. | Applicant(s) |  |
|                              | 09/883,220      | SOOD ET AL.  |  |
|                              | Examiner        | Art Unit     |  |
|                              | Bernard Rojas   | 2832         |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 01 October 2003.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 2-17 is/are pending in the application.

4a) Of the above claim(s) 1 is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) a-17 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Response to Arguments***

Applicant's amendment filed October 1<sup>st</sup>, 2003, with respect to claim(s) 1-17 has been fully considered. The previous rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art reference(s).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Albreecht et al. [US 6,239,685] in view of Lueker et al. [US 4,504,809].

Claim 2, Albreecht et al. discloses a bi-stable microswitch including a pair of contacts [105, 109] and an armature [101] constructed of two materials with different thermal expansion coefficients [abs], moveable between two positions.

Lueker et al. teaches a bi-stable microswitch including a pair of contacts [216, 214], an armature [210] moveable between two positions, a permanent magnet [202] and a magnetizable element [206, 208]. The armature is biased toward a first position when latched by magnetic attraction and is moveable from the second position to the first position upon heating the magnetizable element [col. 2 lines 40-58].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the two teachings and create a microswitch with both a thermal and an magnetic actuation system in order to provide high contact forces in order to yield reliable operation and to increase the switch response time.

Claims 3 and 4, Albreecht et al. in view of Lueker et al. discloses the claimed invention except for the particular material the used in the armature. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use permalloy or invar to obtain specific thermal value for the armature, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 5 and 6, the heating device and the magnetizable element are combined as one piece. The heating device [Lueker et al. 206, 208] is proximate to the armature [Lueker et al. figure 2].

Claim 7, an electrical resistance element in the form of thick film resistors [Lueker et al. col. 2 lines 14-15].

Claim 8, Albreecht et al. discloses a bi-stable microswitch including a pair of contacts [105, 109] and an armature [101] constructed of two materials with different thermal expansion coefficients [abs], moveable between two positions wherein heat is applied to the armature by means of electromagnetic radiation [113].

Lueker et al. teaches a bi-stable microswitch including a pair of contacts [216, 214], an armature [210] moveable between two positions, a permanent magnet [202] and a magnetizable element [206, 208]. The armature is biased toward a first position

when latched by magnetic attraction and is moveable from the second position to the first position upon heating the magnetizable element [col. 2 lines 40-58].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the two teachings and create a microswitch with both a thermal and an magnetic actuation system in order to provide high contact forces in order to yield reliable operation and to increase the switch response time.

Claim 9, the microwave or other radiation is applied by a non-contact means from a remote location [figure 1]

Claim 10, Albreecht et al. discloses a bi-stable microswitch including a pair of contacts [105, 109] and an armature [101] constructed of two materials with different thermal expansion coefficients [abs], moveable between two positions.

Lueker et al. teaches a bi-stable microswitch including a pair of contacts [216, 214], an armature [210] moveable between two positions, a permanent magnet [202] and a magnetizable element [206, 208]. The armature is biased toward a first position when latched by magnetic attraction and is moveable from the second position to the first position upon heating the magnetizable element [col. 2 lines 40-58].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the two teachings and create a microswitch with both a thermal and an magnetic actuation system in order to provide high contact forces in order to yield reliable operation and to increase the switch response time.

Albreecht et al. in view of Lueker et al. discloses the claimed invention except for the particular material the used in the armature. It would have been obvious to one

having ordinary skill in the art at the time the invention was made to use a NiCu alloy to obtain specific thermal value for the armature, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claim 11, the pair of contacts [Lueker et al. 216, 214] are formed in a isolating substrate [Lueker et al. 204].

Claim 12, the magnetizable element is formed on the substrate and is separated from the contacts by an isolating layer of the substrate.

Claim 13, it is common practice in the art to form microstructures and layers through micro machining techniques.

Claim 14, Albreecht et al. discloses a bi-stable microswitch including a pair of contacts [105, 109] and a cantilever armature [101] constructed of two materials with different thermal expansion coefficients [abs], moveable between two positions.

Lueker et al. teaches a bi-stable microswitch including an armature [210] moveable between two positions overhanging a pair of contacts [216, 214], a permanent magnet [202] and a magnetizable element [206, 208]. The armature is biased toward a first position when latched by magnetic attraction and is moveable from the second position to the first position upon heating the magnetizable element [col. 2 lines 40-58].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the two teachings and create a microswitch with both a

thermal and an magnetic actuation system in order to provide high contact forces in order to yield reliable operation and to increase the switch response time.

Claim 15, the armature is formed by micromachining techniques.

Claim 16, it is common practice to create microswitches in arrays on a wafer. Therefore, the bistable microswitch would be created in an array of microswitches.

Claim 17, since it is common practice to create microswitches on wafers, the array of microswitches is formed in a common substrate through standard micro machining techniques.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Rojas whose telephone number is (703) 305-3873. The examiner can normally be reached on M-F (7-4:30), every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (703) 308-7619. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Br

*Copy*  
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10/22/03